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The Success, Challenges and Future of Regenerating SCR Catalyst

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The most effective way to operate catalyst is with a thorough catalyst management program. There are considerable variables for optimal catalyst management: add a layer; replace a depleted layer with new or regenerated catalyst; or mix and match plate, corrugated or honeycomb catalyst in the same reactor. All of these options will change with year-round SCR operation. Third party testing and computer modeling is critical to determining the rate of catalyst deactivation and determining the optimal catalyst and replacement plan for the future.

No matter the catalyst type, there are many possibilities to minimize costs associated with a fleet of SCR systems. Other considerations include trying to match the use of catalyst with scheduled outages; the intervals between which are getting longer. This alone may mean planning for catalyst replacement in multiple layers. SO_2 to SO_3 conversion is also a major consideration in some cases when planning catalyst usage.

There are also possibilities to manage or avoid catastrophic catalyst failure causing loss of generation, non-compliance or the purchase of NO_x allowances. Pooling spare catalyst within the fleet and even within the industry at a central location, as in the case of SCR-Tech, can provide a safe margin for avoiding long, unplanned and economically devastating outages. This can be accomplished without a large investment. As an alternative to purchasing new catalyst, technological advances and economic advantages are making a compelling case for an SCR operator to regenerate rather than replace the catalyst used in their power plants' selective catalytic reduction (SCR) systems.

SCR-Tech, based in Charlotte, North Carolina, provides catalyst management and regeneration services. The proprietary and commercially-proven processes can extend catalyst life by restoring 100 % or more of its original activity level and NO_x reduction performance at a significantly lower cost than replacement. This tool when coupled with an in depth catalyst management program provides significant flexibility and cost savings for SCR owners.